

Report from the GCOS Lead Centre for Antarctica for 2009/10

My overall assessment of the situation for Antarctica, the sub-Antarctic and Southern Ocean stations is one of continuing progress over the last year. Antarctica is now above the global average for receipt of CLIMAT reports.

CLIMAT

The monitoring by Germany and Japan shows that there has been an improvement from around 70% at the beginning of 2009 to around 85% of expected Antarctic CLIMAT reports now being received. In September 2009 the Antarctic percentage was above the global average for the first time and has generally remained so. Some of the Antarctic AWS data is occasionally not available until after the monitoring deadline of the 20th of the month and this probably explains the occasional drops seen by the centres.

In most cases missing CLIMATs are just occasional lapses, often involving a failure in GTS insertion or forwarding, and these are sometimes made up in later months following prompting. Two operating stations however do not report CLIMATs. These are 89625 (Concordia, France/Italy) and 89662 (Mario Zuccelli Station, Italy). There are however generally sufficient SYNOPs from these stations on the GTS to generate monthly mean values. Two AWS stations are problematic: only the wind sensor on 89744 (Relay Station, USA) works and 89865 (Whitlock, USA) has quality control issues. 89327 (Mount Siple, USA), does not have sufficient battery strength to operate through the winter.

Some stations suddenly show format errors in their messages, which in most cases can be traced to inexperienced operators and is soon corrected.

Continued operation of some of the University of Wisconsin AWS cannot be guaranteed, due to problems of both funding and access. The operator has indicated that they would like to remove stations 89327 (Mount Siple) and 89865 (Whitlock) from the GSN as there is currently little prospect of getting access to the sites for essential maintenance. The Mount Siple station is the only one in its vicinity and is highly desirable for climate studies, particularly in view of the apparent exceptional warming in West Antarctica. Whitlock is relatively (in Antarctic terms) close to McMurdo and hence is less critical. It may be beneficial to identify particularly important GSN stations, and also to suggest additional areas where stations might be sited. The map at <http://amrc.ssec.wisc.edu/images/awsmmapnew.jpg> shows the majority of AWS sites, and the map at http://www.wmo.int/pages/prog/www/images/Antarctica/antarctic_region05.pdf shows the manned stations.

In addition funding constraints may restrict real-time availability of SYNOP data for some of the Antarctic Peninsula AWS, though this should not affect the prompt generation of CLIMAT messages. Providing cheaper Argos or Iridium transmission tariffs for operational use would address the problem. The DCP at 89063 (Vernadsky, Ukraine) had failed, and although the British Antarctic Survey visited the station in December and installed a replacement, transmissions have not resumed.

The EC-PORS meeting held in 2009 October discussed the ABSN and ABCN and has reviewed the composition of the two networks. In practice the ABCN is the subset of the ABSN which generates CLIMAT messages, but could be extended to include additional stations. The British Antarctic Survey is investigating the possibility of generating a provisional CLIMAT message from the available SYNOP messages for those stations which do not currently produce a CLIMAT. This will only be done for those stations with greater than 90% availability of SYNOP messages.

Two stations have begun operation: 89087 (Thiel Mountains in 2009 January), and 89575 (Druzhnaya 4 in 2010 January) and it may be desirable to consider them for GCOS status in due course. Several others have resumed operation or have become available on the GTS. 89081 (Patriot Hills) closed in 2010 January and the AWS was moved to a new site at Union Glacier with SYNOPs being transmitted in MOBIL format with identifier AAUNI. The AWS at 68992 (Bouvetoya) has failed and its replacement is not expected before 2010/11.

CLIMAT TEMP

The reception of CLIMAT TEMP bulletins continues to be patchy. Whilst they may no longer be required for climatic purposes, they do provide a valuable cross-check on the reception of TEMP messages on the GTS. Using this cross-check suggests that the GTS may lose up to 5% of messages from certain stations. Only two of the twelve Antarctic GUAN stations (89532, Syowa, Japan and 89611, Casey, Australia) have carried out a full program year round, whilst eleven stations carry out sufficient sonde flights to provide a CLIMAT TEMP at one of the standard hours, and several have additional seasonal flights. The program of flights from 89055 (Marambio, Argentina) has increased to two per week, usually on the days when sondes are not flown at 89062 (Rothera, UK). During the winter the American stations have had problems with balloons bursting before the sonde has reached 100hPa due to the very cold stratospheric temperatures. Most of the other stations used Totex balloons.

GENERAL

There are still some stations being included in the wrong bulletins, ie not in the appropriate CSAA or CUAA bulletin, but in a national bulletin.

Internet Explorer 7 is necessary to view the graphics on the DWD monitoring centre web page; this prevents unix users from viewing the information. In the monthly monitoring reports, it would be helpful to list the stations with errors as well as the regions in which they occur; this would make it much easier to locate the error and inform the operator.

In conclusion, there has been continued progress, however in the future there is uncertainty over the continued real-time availability of data from the network of AWS.

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